IN THE ABSTRACT:

Please replace the current abstract with the following paragraph:

An adaptive temperature dependent clock feedback control system and method for adaptively varying a frequency of a clock signal to a circuit such that the circuit may operate at a maximum safe operating clock frequency based on a circuit junction temperature. The clock control system includes a thermal sensor and a temperature dependent dynamic overclock generator circuit. The thermal sensor detects a junction temperature corresponding to at least a portion of the circuit on a semiconductor die. The temperature dependent dynamic overclock generator circuit varies the clock signal based on the semiconductor die junction temperature, such that the clock signal operates at the highest possible operating frequency associated with the detected junction temperature. The frequency of the clock signal is increased from a first frequency to at least a second frequency and a third frequency if the junction temperature is below a lower junction temperature threshold.